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of salts in nitrils are good conductors of electricity makes a determination of the dielectric constant of importance. Hydrocyanic acid was found to have a higher dielectric constant than water. An increase in the size of the molecules of nitrils by the addition of carbon and hydrogen lowers the dielectric constant. 'The Fundamental Equation of a Multiple Point,' by Paul Saurel. 'On a Property of the Pressure-Volume Diagram,' by Paul Saurel. 'Dissociation Studies,' by Wilder D. Bancroft. A study of the equilibrium relations of the three modifications of ethyl-aldehyde.

THE April number (No. 2, Vol. XXIII.) of the *American Journal of Mathematics* contains the following memoirs: 'The Cross Ratio Group of 120 Quadratic Cremona Transformations of the Plane,' by H. É. Slaught; 'Memoir on the Algebra of Symbolic Logic,' by A. N. Whitehead; 'On a Special Form of Annular Surfaces,' by V. Snyder; 'On the Transitive Substitution Groups, whose Order is a Power of a Prime Number,' by G. A. Miller; 'Geometry on the Cubic Scroll of the Second Kind,' by F. C. Ferry.

THE leading article of the May number of *Popular Astronomy* is the concluding one of the series written by Herbert A. Howe, on 'Astronomical Books for the Use of Students.' G. Seneca Jones contributes a discussion of Professor Holden's recent article in *McClure's Magazine*, entitled 'What we Know about Mars'; George C. Comstock an article on 'Establishing a Meridian Line,' and Dr. J. Morrison the third instalment of a series on general perturbations and the perturbative function. 'The New Star in Perseus' is discussed by A. E. Douglass, of the Lowell Observatory, Flagstaff, Arizona, and by George E. Hale, of the Yerkes Observatory, and Professor J. G. Hagen's second chart and catalogue are printed. Observations are reported by David E. Hadden, F. E. Seagrave and Wm. E. Sperra. Dr. H. C. Wilson writes of the approaching total solar eclipse of May 17-18, 1901, accompanying his article by charts showing the path of the eclipse and its track across Sumatra and Borneo. The General Department contains notes upon Amherst College Total Eclipse Expedition, the

Benjamin Apthorp Gould fund, Eros a Double Planet, Astronomy in High Schools, List of Stellar Novæ and So-called New Stars-Book, reviews of Serviss, 'Pleasures of the Telescope,' and Comstock's 'Text-Book of Astronomy,' 'Astronomy in the 20th Century' and the Alvan Clark and Sons Corporation. The usual planet and asteroid notes are also included.

SOCIETIES AND ACADEMIES.

ANTHROPOLOGICAL SOCIETY OF WASHINGTON.

AT the 317th meeting, held on April 9th, Mr. George C. Maynard exhibited an interesting series of early time-keeping apparatus, consisting of a set of four sand glasses, mounted in a frame, used during the fourteenth century in churches; a water clock; a pewter and glass time lamp; a time candle, and a small cocoa-nut cup from Lower Siam, having a perforation; the cup, when floated on a basin of water, sinks in a stated period.

Hon. Edward F. McSweeney, Assistant Commissioner of Immigration, port of New York, read a paper on the immigration question. The paper was accompanied by charts and photographs of racial types. Mr. McSweeney, in discussing the subject of immigration, gave some historical account of the origin and cause of such movements, and, in reference to the tide that early set toward this country, he called attention to the variety of peoples that were represented. In the chart showing immigration by years, the diminution of the influx of foreigners during the periods of industrial depression was most marked. Mr. McSweeney pointed out that the foci of immigration have shifted from northern Europe to eastern Europe, and that the bulk of immigrants are Italian, Slavic and Oriental, of an undesirable class. He fears that the present tendency to concentration in all fields of industrial endeavor may be utilized in connection with the introduction of vast hordes of these aliens to break down labor conditions and wage standards, and suggests that legislation to exclude this undesirable class should be framed. The paper was discussed by Major J. W. Powell, John R. Proctor, and a number of others present.

WALTER HOUGH.

PHILOSOPHICAL SOCIETY OF WASHINGTON.

THE 535th regular meeting was held April 27th, President Walcott in the chair.

Mr. I. M. Cassanowicz, of the National Museum, presented an interesting paper on 'The Funerary Rites of the Ancient Egyptians.' He said the monuments and remains of ancient Egypt are chiefly of a sepulchral character. The Egyptians believed in a personal existence after death. Their conception of the conditions and localities of the future existence was vague, but these seem to have been patterned after the conditions known in Egypt: the dead formed a nation who worked for Osiris as for a Pharaoh. As the Egyptians could not conceive of existence apart from a tangible substance, a link was needed to connect the *Ka*, the representative of personality, with the world of substantial things; this link was the body, and so its preservation was indispensable.

The various modes of embalming were then described, all involving a process of steeping in natron for 70 days. The bodies of the poor were preserved by soaking in salt and hot bitumen, whence the name 'mummy.' Then followed a minute description of an Egyptian funeral, largely derived from the Papyrus of Ani, a finely illustrated 'Book of the Dead' a facsimile of which is in the National Museum.

The next paper was by Mr. A. L. Baldwin, of the Coast and Geodetic Survey, on 'The Measurement of Nine Primary Bases in 1900.' The bases referred to are those required to control the triangulation which is now being carried both northward and southward from the great transcontinental belt of triangulation in latitude 39°, and will eventually give an arc of the ninety-eighth meridian twenty-three degrees long in the United States. On this triangulation it was decided to measure the bases with considerable rapidity while keeping the accuracy fully up to the requirements of the triangulation. Five sets of base apparatus, namely, the Eimbeck duplex bars and four tapes, were used on each base, about one-fifth of the measurement being made with each. Each set of apparatus was standardized under the field conditions at the first and last base, using the iced bar formerly employed on the Holton Base as the standard. The paper was a state-

ment of the methods of measurements and of some of the results obtained in the field, and closed with a good series of twenty-six lantern slides showing the different forms of apparatus in actual use in the field. The greatest difference between measures of the same base was 20 mm. to the kilometer. The nine bases were measured by a party of ten officers and men in but little more than six months.

CHARLES K. WEAD,
Secretary.

BIOLOGICAL SOCIETY OF WASHINGTON.

THE 339th meeting was held on Saturday evening, April 20th. Mr. O. F. Cook read a paper on 'The Shading of Coffee,' in which he advanced the belief that there is no basis in reason or observed fact for the common idea that shade is a general necessity for the coffee plant. It was shown that the beneficial effects connected with shade arise only from the protection afforded against drought, erosion and winds, and that in regions not affected by injurious climatic extremes the planting of shade trees is justified from the cultural standpoint only by the increased fertility imparted to the soil by means of the nitrogen-fixing root tubercles of leguminous species. This being the case, it was thought that leguminous fertilizing might be effected by shrubs and herbs yielding edible or otherwise useful fruits and requiring no more space or care than those yielding no direct returns.

Mr. Charles L. Pollard presented a paper entitled 'Some Strange Methods of Plant Naming,' giving a brief review of the various classes of incorrect generic and specific names, and commenting on the practices that have been followed in each case. He discussed particularly the so-called barbaric names of Adanson and Necker; those falsely constructed from classical sources, and those whose meanings are at variance with actual facts. The speaker also discussed the modern tendency to carelessness in the publication of scientific names, and recommended that botanists give united support to some movement in favor of greater exactness in nomenclature.

Dr. Theodore Gill made some remarks 'On the Mode of Progression and Habits of some

Dinosaurs,' contending that the supposed saltatorial habits of forms like *Hadrosaurus* and *Iguanodon* were physical impossibilities. Besides noting that the force of gravity would prevent so much action in such ponderous animals, the speaker also mentioned structural characters incompatible with it—notably the absence of the calcaneum.

WILFRED H. OSGOOD,
Secretary.

TORREY BOTANICAL CLUB.

At the meeting of the Club on February 27, 1901, the scientific program was introduced by Dr. Britton with a paper 'On some *Senecios* of the Eastern United States.' The critical study of this genus dates from 1893, when Dr. Rusby collected in the Green Mountains a peculiar plant, described but not published in the middle of the century by Oakes and named by him *Senecio Robbinsii*. Dr. Rusby described this plant in the *Bulletin* in 1893.

While working up the genus for the Illustrated Flora 1895-6, Professor Britton found that *Senecio aureus* of Gray's Manual included the six following species: *Senecio obovatus*, *S. discoideus*, *S. Balsomitæ*, *S. Smallii*, *S. compactus*, *S. Robbinsii*; besides *S. aureus* with two varieties. Professor Britton showed specimens of the species discussed: 1st, *S. aureus*, common and known by its large cordate basal leaves, growing in wet meadows; 2d, var. *gracilis*, with smaller cordate leaves, considered by Professor Greene a distinct species. Professor Britton had on one occasion observed intermediate forms and thought the distinction not clearly established. Both forms are growing in the Composite beds in the Garden. 3d, var. *pauciflorus*, smaller in every way than *S. aureus*, found in Newfoundland and Labrador; 4th, *S. Robbinsii*, smooth, with thin and jagged leaves, belonging to New England and the Adirondacks; 5th, *S. Smallii*, with long basal leaves and large corymbs of small heads. This occurs in the south, and is reported as far north as Pennsylvania. 6th, *S. obovatus*, with obovate leaves, including two subspecies, the first *elongatus* from the Delaware valley, with the lower portion of the leaves elongated, and smaller heads almost devoid of rays; the second,

rotundus, from Tennessee and Missouri, which may be a distinct species. *S. discoideus* and *S. compactus*, are western species, separated by Dr. Rydberg.

Professor Britton quoted from a recently published study of *Senecio* by Professor Greenman, who distinguishes two additional varieties of *S. balsamitæ*, *pauperculus* and *prælongus*. Professor Britton said that there was much need of further material and observations in the field of all these forms.

Specimens of the *tomentosa* group of *Senecio* were then shown: *S. tomentosus* of Michaux, common along the Atlantic seaboard as far north as New Jersey; *S. antennarifolius*, found by Dr. Allen and Professor Britton at the White Sulphur Springs in West Virginia. This species is established in the Garden and flowers early.

A peculiar and undescribed species was exhibited collected by Professor Earle in Henry County, Alabama, resembling the *tomentosa* group in general characters, but having no tomentum. This differs from all other species in having the teeth tipped with round glands.

Dr. Britton expressed the hope that field notes on this genus would be made during the coming season.

The second paper, also by Dr. Britton, was on *Eupatorium*, and illustrated the three Linnean species, *E. purpureum*, *E. maculatum*, and *E. trifoliatum*; the first two were collected at Copake Iron Works last summer on a field excursion of the Club. Of these, *E. purpureum*, with thin almost glabrous leaves with sharp teeth, grows in woodland and copses; and *E. maculatum* has leaves thick and rugose, with prominent veins broader and more ovate, and not as sharply serrate as the last; stem rough and spotted; grows in open meadows.

E. trifoliatum has been found in the South, as far north as Pennsylvania; it was named by Elliott *E. ternatum*.

The essential distinction of this species is the crenate leaves; the stem is smooth, the leaves narrower and inflorescence often larger than *E. purpureum*.

Dr. MacDougal showed an opened spathe of skunk cabbage found in the Garden, which was greeted as the first authentic sign of spring.

He exhibited an experiment on the force exerted in the swelling of seeds; a strong iron pipe was filled with peas and water, and a test tube inserted in the top. In 24 hours from the time the peas were put in, a pressure was registered of eight atmospheres, or 120 pounds to the square inch, the highest pressure hitherto recorded by this means.

Dr. MacDougal also discussed malformations in *Arisaema*, and showed specimens of *A. triphyllum* with the spathe double or forked, with the spadix divided and flattened or proliferous, and with two leaves from the same petiole. Also *A. dracontium* with the tapering end of the spathe divided into double hood-like forms. He called attention to the fact that early specimens may be infested with a fungous growth which causes the hood to stand erect.

EDWARD S. BURGESS,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE KEELER MEMORIAL.

PROFESSOR KEELER'S sad and sudden death last August came as a great and unexpected shock to his many friends and admirers. Of his work and life it is unnecessary to speak here; it has been sympathetically and ably described by Campbell, by Hale, by Brashear, by Perrine and others. The whole scientific world has united to mourn his loss, both as a colleague and as a friend. But nowhere has his death been more keenly felt than among his many friends and associates whom he formed while connected with the Allegheny Observatory. It was here that he began his scientific career as assistant to Professor Langley, and it was here, as Langley's successor, that he subsequently accomplished much of the work that has rendered his name famous.

It seems therefore particularly fitting that the new Allegheny Observatory, the first plans for which were drawn by Keeler, should contain a memorial to his memory. When the news of his death was received we arranged to have his name placed on the frieze of the new building among the names of other great American astronomers of the past. But some more special tribute is needed to mark our appreciation of his high attainments as a scholar, of his dis-

tinguished services not only to our own observatory, but to the whole scientific world, and last but by no means least to his noble character as a man.

Keeler's last great work, the work upon which he was still engaged when death so suddenly cut him down in the prime of life, was being carried on with the Crossley reflecting telescope, an instrument which for the first time under his able management was being made to demonstrate its possibilities. It is proposed, therefore, to erect the 30-inch reflecting telescope of the new Allegheny Observatory as a peculiarly fitting memorial to his memory; one which he himself would prefer to any monument or statue. The suggestion has met with much favor among his many friends, and a fund is now being raised to carry it into effect.

We desire to make this memorial a general rather than a local tribute to Professor Keeler. A number of voluntary subscriptions have already been promised, and many of his scientific friends and colleagues from other institutions have expressed a desire to contribute. We feel sure that there are many others that only await an opportunity or an invitation to join the movement, and I have therefore written this notice to bring the subject to their attention. Those who wish to subscribe to the fund will kindly send their names and the amount of their subscription to Mr. John A. Brashear, chairman of the Observatory committee, or to the writer. All contributions will be acknowledged from time to time in SCIENCE. If the fund raised exceeds in amount the estimated cost of the memorial telescope, which is \$10,000,* the balance will be used either to found a general fellowship for the study of astrophysics, 'the Keeler Fellowship,' or for the award of a 'Keeler Medal' for work in the same field, as the majority of the contributors may decide; the award in either case to be made by the Astronomical and Astrophysical Society of America or some other scientific body equally representative of general interests.

We hope all scientific men will join us in this effort to do honor to the name of one who did so much for the advancement of knowledge in

* It is expected that at least this amount will be subscribed here in Pittsburg and Allegheny alone.